

Appl. No. 10/613,612
Amdt. dated July 5, 2005
Reply to Office Action of May 31, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Previously presented): A method for externally cueing one or more countermeasure systems within a vehicle and deploying one or more countermeasures, comprising the steps of:

acquiring signals from one or more surveillance systems that are external to and physically spaced apart from the vehicle;

distinguishing a threat from said signals;

wirelessly transmitting a cue signal from said one or more surveillance systems to a receiver within the vehicle;

activating, in response to said cue signal, the countermeasure system within the vehicle; and

deploying said countermeasure.

Claim 2 (Original): The method of Claim 1, wherein said step of acquiring signals is selected from the group consisting of acquiring radar signals, acquiring acoustic signals, acquiring magnetic signals, acquiring seismic signals, acquiring infrared signals, and acquiring visible light signals.

Claim 3 (Original): The method of Claim 2, further comprising the step of preventing a surface-to-air missile from hitting an aircraft.

Claim 4 (Original): The method of Claim 1, further comprising defeating an airborne threat.

Claim 5 (Original): The method of Claim 4, wherein said step of defeating an airborne threat comprises defeating a surface-to-air missile.

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Claim 6 (Original): The method of Claim 1, further comprising sending a warning signal.

Claim 7 (Original): The method of Claim 6, further comprising deploying a surveillance system in an area adjacent to an airport.

Claim 8 (Original): The method of Claim 7, wherein said step of deploying comprises deploying a surveillance system adjacent to one or more runways of an airport.

Claim 9 (Original): The method of Claim 1, wherein said step of distinguishing a threat further comprises converting an analog signal to a digital signal.

Claim 10 (Original): The method of Claim 9, further comprising a step of converting said digital signal to a frequency domain.

Claim 11 (Original): The method of Claim 10, wherein said step of converting said digital signal to a frequency domain includes implementing of a discrete Fourier transform (DFT).

Claim 12 (Original): The method of Claim 11, wherein said step of converting said digital signal to a frequency domain includes implementing a fast Fourier transform (FFT).

Claim 13 (Original): The method of Claim 1, wherein said step of distinguishing a threat further comprises comparing an acoustic signal to a known acoustic signatures of a known surface-to-air missile.

Claim 14 (Original): The method of Claim 13, wherein said step of comparing further comprises filtering said acoustic signals.

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Claim 15 (Original): The method of Claim 14, wherein said step of filtering further includes using a matched filter corresponding to one or more known surface-to-air missiles.

Claim 16 (Original): The method of Claim 14, wherein step of filtering further comprises using a digital filter.

Claim 17 (Original): The method of Claim 16, wherein said step of using a digital filter further comprises using an infinite impulse response (IIR) filter or a finite impulse response (FIR) digital filter.

Claim 18 (Original): The method of Claim 17, wherein said step of using a digital filter includes using a window function selected from the group consisting of a rectangular window function, a triangular window function, a Bartlett window function, a Hanning window function, a Hamming window function, a Blackman window function, a Kaiser window function, and a Chebyshev window function.

Claim 19 (Original): The method of Claim 9, further comprising a step of determining position information for an acoustic source.

Claim 20 (Original): The method of Claim 19, wherein said step of determining position information includes using time-difference of arrival calculations.

Claim 21 (Original): The method of Claim 20, wherein said position information includes a distance or a bearing.

Claim 22 (Original): The method of Claim 1, wherein said step of deploying a countermeasure comprises deploying an aircraft-based countermeasure.

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Claim 23 (Original): The method of Claim 22, wherein said step of deploying a countermeasure selected from the group consisting of deploying flares, deploying chaff, and deploying infrared decoys.

Claim 24 (Original): The method of Claim 1, wherein said step of deploying a countermeasure comprises deploying a ground-based countermeasure.

Claim 25 (Original): The method of Claim 24, wherein said step of deploying a countermeasure comprises deploying an infrared decoy.

Claims 26-33 (Canceled)

Claim 34 (Previously presented): An externally cued countermeasure system within a vehicle and deploying one or more countermeasures comprising:

a surveillance system external to and spaced apart from the vehicle operable to detect one or more signals and to wirelessly transmit a cue signal; and

a countermeasure system within the vehicle operable to receive said cue signal from said surveillance system and to activate one or more countermeasures within the vehicle in response to said cue signal.

Claim 35 (Original): The system of Claim 34, wherein said surveillance system comprises a sensor array.

Claim 36 (Original): The system of Claim 35, wherein said sensor array includes one or more sensors selected from the group consisting of radar receivers, acoustic sensors, seismic sensors, magnetic sensors, and photodetectors.

Claim 37 (Original): The system of Claim 36, wherein said sensors are acoustic sensors.

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Claim 38 (Original): The system of Claim 36, wherein said sensors are photodetectors.

Claim 39 (Original): The system of Claim 38, wherein said photodetectors include infrared detectors.

Claim 40 (Original): The system of Claim 39, wherein said infrared detectors comprise a forward-looking infrared array (FLIR).

Claim 41 (Original): The system of Claim 34, wherein said surveillance system further comprises a signal processor operable to process acoustic signals acquired by said sensor array.

Claim 42 (Original): The systems of Claim 41, wherein said signal processor further comprises a matched filter, and wherein said signal processor is operable to process acoustic signals received by said sensor array and to distinguish the presence of one or more threats to said aircraft.

Claim 43 (Original): The system of Claim 41, wherein said signal processor includes a digital signal processor.

Claim 44 (Original): The system of Claim 34, wherein said surveillance system comprises a sensor field of sensor arrays, pre-positioned near a runway.

Claim 45 (Original): The system of Claim 34, wherein said countermeasure system comprises a radar jammer onboard an aircraft.

Claim 46 (Original): The system of Claim 34, wherein said system includes a computer-readable medium having computer-executable instructions stored thereon to distinguish one or more acoustic signatures of known surface-to-air missiles.

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Claim 47 (Original): The system of Claim 46, wherein said computer-readable medium comprises said computer-readable medium of Claim 33.

Claim 48 (Original): The system of Claim 46, wherein said surveillance system includes said computer-readable medium.

Claim 49 (Original): The system of Claim 34, wherein said countermeasure system is an aircraft-based countermeasure system.

Claim 50 (Original): The system of Claim 49, wherein said one or more countermeasures are selected from the group consisting of flares, infrared decoys, and chaff.

Claim 51 (Original): The system of Claim 34, wherein said countermeasure system is a ground-based countermeasure system.

Claim 52 (Original): The system of Claim 51, wherein said one or more countermeasures comprises infrared decoys.